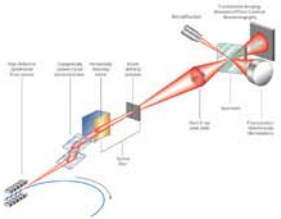
The Center for Nanoscale Materials

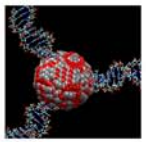
Argonne National Laboratory's Center for Nanoscale Materials is a partnership between the U.S. Department of Energy's Nanoscale Science Research Centers program and the State of Illinois. Jumpstart access to CNM's user nanoscience program has begun in order to serve the regional and national research community. Center operations in a new 85,000 s.f. building will commence in Spring 2006.

http://nano.anl.gov

X-Ray Nanoprobe

The world's highest resolution hard x-ray microscope with a 30 nm spot size





Virtual Fab Lab

Multiscale simulations for designer nanomaterials supporting all five scientific themes

Integrated Facilities

Advanced Lithographies

State-of-the-art 100 kV e-beam nanopatterning, FIB, and nanoimprint lithography

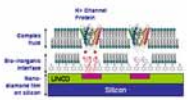
Synthesis & Characterization Tools

Cleanroom and conventional laboratories supporting biosynthesis, inorganic synthesis, electrochemistry, and metrology

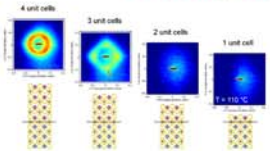
Enable Science

Bio-Inorganics

Bridging the interface between soft and hard matter to exploit the best properties of both



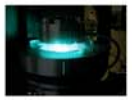
Complex Oxides



Synthesizing and improving understanding of nanoferroelectrics, spin-polarized oxides, and multiferroics

Nanocarbon

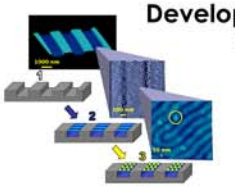
Developing functional devices with nanoscale carbon materials



Basic Research for Energy Applications

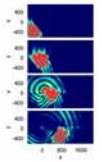
- More efficient motors
- Non-volatile electronics
- Self-assembling data storage
- Chemical sensing
- Increased bandwidth
- Optical computing & switching
- Engineered catalysts
- Ion transport materials
- Fuel cell materials
- Capacitive energy storage
- Friction reduction coatings
- Light harvesting materials
- Energy transduction
- Biomolecule manipulation
- Biocompatible electronics
- Biological sensing

Nanomagnetism



Developing spintronics and ultrastrong magnets by nanostructuring magnetic materials

Nanophotonics



Creating a new generation of optical devices that overcome the limitations due to light's wavelength